EXHIBIT D

facebook
Experimentation
Ethics

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Agenda

- Case Examples
- Framework for Ethical Decisions
- What does this mean at Facebook
- Wrap

Case Examples

Ethical Experiments – Ethical or Not?

- In 1939, University of Iowa researchers conducted experiment on 22 orphan children
- Two groups:
  - 1) Children received positive speech therapy where children were praised for speech fluency.
  - 2) Children received negative speech therapy and were belittled for every speech imperfection.
- Results
  - Normal-speaking children in the second group developed speech problems which they then retained for the rest of their lives.

Ethical Experiment: Hypothetical

- A hospital director is trying to reduce the rate of medical error. She's heard that checklists of standard safety procedures can cut errors down, but she doesn't know anything about which approach to checklists does the most to reduce errors. Here are a few approaches she could try:
- Options:
  1. She could print safety checklists on every doctor's mandatory ID badge.
  2. She could put a poster in each room with a safety checklist.
  3. She could randomly do posters for half of operations and ID badges for the other half, measure which works best for a year, and then implement that for the whole hospital.

Public Perception

- **Public perception results**
  - Overwhelming majority was okay with either doing the badge or doing the poster.
  - 40-50% of them felt it was "inappropriate" or "very inappropriate" for the director to conduct randomized test
- **Extends beyond medical:**
  - Found similar results in "direct-to-consumer genetic testing, autonomous vehicle design, employee retirement plan enrollment nudges, recruitment of health workers in developing countries, alleviation of extreme poverty, promoting school teacher well-being, and basic income policy options.

Ethical or not?

- Keeping someone in a holdout group for a key feature for a month?
- Keeping someone in a holdout group for a key feature for a year?
- Keeping someone in a holdout group for a key feature for 5 years?

Do your opinions change for an integrity experiment?

Ethical or not?

- Allowing a random group of advertisers to have a 10% discount?
- Deliberately adding a delay/latency to someone's experience?
- Deliberately preventing someone from using an in app version of a feature for a certain period until they download the full version?
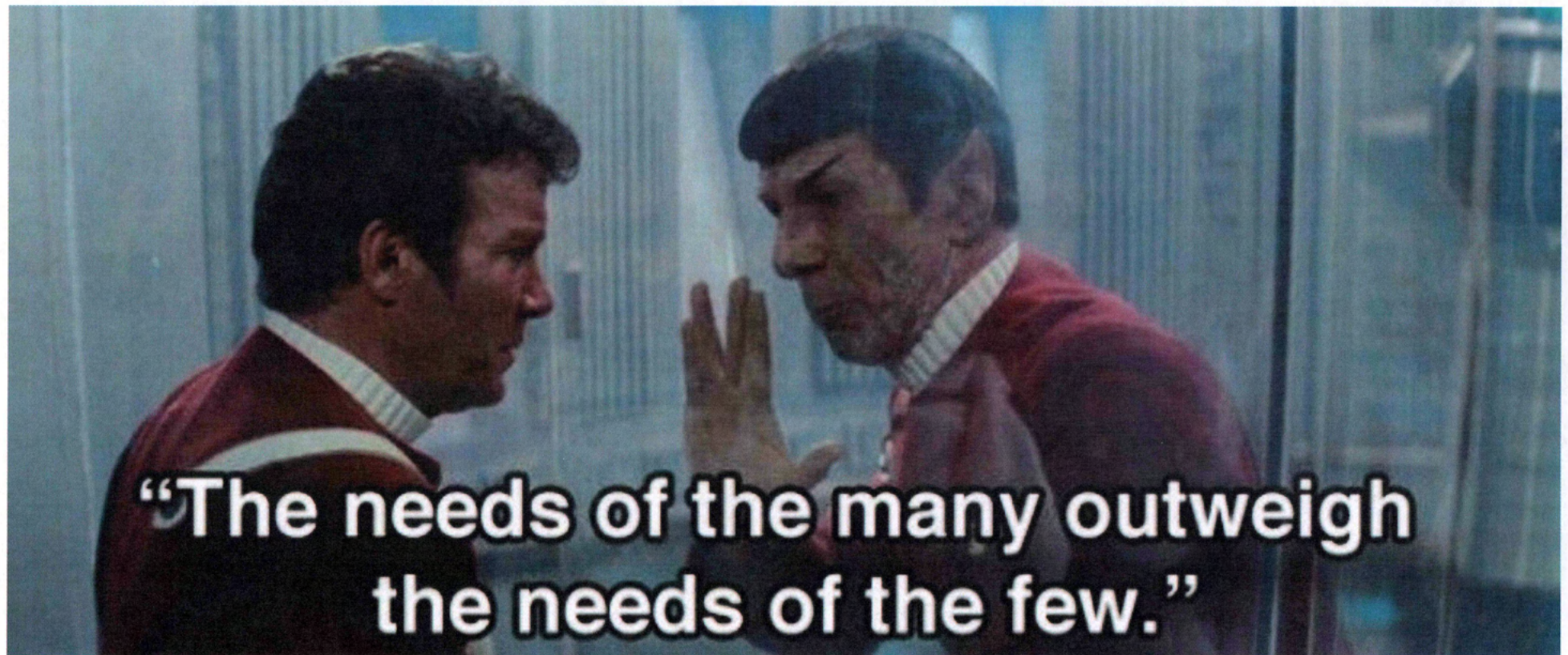
Framework

Framework: Ethical principles for human subjects research (Belmont Report + Menlo Report)

1. Respect for Persons
2. Beneficence
3. Justice
4. Respect for law and public interest

1. Respect for Persons

- Treat individuals as autonomous agents and respect their right to determine their own best interests.
- Implications
  - Whenever possible, make users aware of and allow them to consent to experimentation
  - If possible, explain the reasoning and justification for the product being tested (e.g. via a NUX)
- Individuals with diminished autonomy, who are incapable of deciding for themselves, are entitled to additional protection
  - e.g. minors

2. Beneficence

- Recognizing the potential risks and benefits of research and striking a balance between them

- Implication
  - Conduct a thorough evaluation of the benefits and risks of an experiment during the planning phase

3. Justice

- Ensuring that the risks and benefits of research are fairly distributed
- Implications
  - Determine whether the experiment is likely to benefit all users in an equitable way.
  - Assess whether the risk of the experiment is borne disproportionately by certain types of users.

4. Respect for Law and Public Interest

- Recognizing the risks and benefits for all relevant stakeholders, not just research subjects

- Implication:
  - Beyond assessing risks for users directly affected by experiments, you must additionally consider global citizens, governments, businesses, etc.

Potential ways to cause harm

- Withholding known benefits
  - Holdout groups
- Intentionally degrading the user experience
  - Slowdowns or app crash tests
- Introducing bugs or issues
  - Using experiments as a substitute for testing
- Failure to measure negative experiences
  - Investing little time/effort in capturing possible detrimental effects

Facebook-specific harms

- **Privacy risk:** harm caused when information about a person is made available to others without their consent

- **Degraded experience:** harm caused when Facebook does not function normally, preventing a person from accomplishing a communication task they expect.

- **Inability to seek help:** harm caused when a condition prevents a person from reporting dangerous or unwanted behaviors

Harm amplifiers

- The experiment affects a vulnerable population.

- The experiment is strategic and not tactical – i.e. it is not directly tied to a product decision.

- The experiment affects content or interactions that people may view as deeply personal.

Vulnerable populations

- Vulnerable populations are special groups of users who might be particularly susceptible to harm from research and product tests.

- Some examples:
  - Minors
  - Racial and ethnic minorities
  - People with special access needs
  - People in politically unstable areas

Strategic vs. Tactical Experiments

- Typically we research and test potential improvements to the product that we think will benefit our users.
- Sometimes we test changes that may degrade the user experience simply to learn something that improves our understanding. These cases have harder-to-justify benefits.
  - Examples:
    - Forced app crashes or slowdowns in order to measure how sensitive users are to stability/speed.
    - Holdouts from known positive product features in order to measure cumulative improvements.

Deeply personal content or situations

- We have access to a wide variety of information that puts our users at significant privacy risk.
- We must only use these data when the benefits outweigh the risks to our users.
- Examples of sensitive experiments:
  - Exposing location data to friends for a new product feature.
  - Ranking content based on ethnicity

Wrap

Takeaways

1. Assess risk during the planning phase, before the research/experiment is conducted
2. Consider whether the risk is worth the potential benefits
3. Find ways to reduce the risk

References

Research Review at Facebook (have Privacy, Legal, Policy, Comms review your research if not already part of XFN review)
https://fburl.com/research_review

Bit by Bit: Chapter 6 on Ethics (book by Matt Salganik)
http://www.bitbybitbook.com/en/ethics

Building Robust Review for Industry Research (Facebook white paper)
https://pxl.cl/bt51

Section 1.2 of "Randomized experiments to detect and estimate social influence in networks"
https://arxiv.org/pdf/1709.09636.pdf